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CLICK HERE FOR THE DIRECTOR OF INTERNAL SERVICE'S REPORT DATED AUGUST 4, 2016

County of Los Angeles
INTERNAL SERVICES DEPARTMENT
1100 North Eastern Avenue
Los Angeles, California 90063

JIM JONES
Director

Telephone: (323) 267-2103
FAX: (323) 264-7135

"To enrich lives through effective and caring service"

June 3, 2015

To: Supervisor Michael D. Antonovich, Mayor
Supervisor Hilda L. Solis
Supervisor Mark Ridley-Thomas
Supervisor Sheila Kuehl
Supervisor Don Knabe

From: Dave Chittenden
Chief Deputy Director

Subject: **REPORT BACK ON SOLAR PANEL PILOT PROJECT**

On November 25, 2014, your Board instructed the Internal Services Department (ISD) to work in conjunction with the Chief Executive Officer (CEO) and other appropriate departments to accelerate the County's adoption of solar to develop a pilot project to install solar panels on County buildings. The specific actions included:

1. Initiate a competitive contracting process to implement a Rooftop Solar Pilot Project to install solar panels on up to 15 County buildings;
2. Return to the Board of Supervisors with the proposed contract(s), no later than120 days from today, together with an analysis of costs using a County-financing model, so that the Board of Supervisors can select one or both of these options;
3. Report back to the Board of Supervisors at appropriate intervals during the contracting and installation process, and again when the solar panels are completed, regarding ways in which the County can further improve the solar installation process on County buildings in the future and;
4. For the first year after installation of the solar panels, submit a report back to the Board of Supervisors, on a quarterly basis, on solar panel performance and savings in energy costs. After the first year, submit the report annually.

This memo is a status report to your Board on the specific actions taken to address the motion, close out the first two items and provide the Board with ISD's recommendations to comply with the additional reporting instructions during the contracting, installation and operations phases.

Executive Summary

Two solar models were solicited and evaluated against continuing business as usual (BAU) purchases of electricity from SCE. Both solar models provide economic and environmental improvements over business as usual. However, the solar power purchase agreement (PPA) model provides the most benefits to the County. Current solar market conditions are particularly attractive

due to tax and electric policies which will expire in 2016 so proceeding in a timely manner is imperative for the County to capture the benefits described in this memo.

Contracting Process

ISD conducted a competitive solicitation that requested proposals under two solar business models:

1. a power purchase agreement (PPA) model, under which the County would purchase the solar electricity produced by the installations from a 3rd party who installs, owns, operates and maintains the installations and;
2. a County-purchased model, under which the County would use long term financing to purchase the installations and would be responsible to operate, maintain and insure them.

On February 18, 2015, ISD released two (2) work order solicitations (WOS) for Rooftop and Canopy (parking lot coverage) Solar Pilot Projects for various County facilities under its Energy Efficiency Projects Master Agreement (EEPMA). The scope of the solar projects were for small installations (15 sites at less than 200kilo-Watts - solicitation number EEP131), and larger installations (11 sites at over 200 kilo-Watts - solicitation number EEP132). Eighteen qualified vendors under the EEPMA Renewable Resources and Distributed Generation category were notified of the solicitation opportunities. No more than 15 projects would have been awarded.

Eight (8) vendors attended the mandatory proposer's conference and job walks were held on February 26, 2015. There were no proposals received for EEP131; four (4) proposals were received for EEP132 by the March 31, 2015 deadline. The four (4) proposals were reviewed for compliance with the minimum requirements set forth in the WOS. The proposals were determined to be in compliance with the minimum requirements and an evaluation committee evaluated the responses in accordance with the evaluation criteria in the WOS. No bids were received for the smaller installations.

Contract(s) for the selected vendor(s) will be provided if your board provides direction for ISD to proceed with an award.

The solicitation process will continue with notifications to non-selected vendors, the protest process, negotiations, and work order award(s) based on your Board's direction.

Modeling and Results

The results from the solicitation provide firm pricing that would create both near and long term savings over the business as usual (BAU) model where the County purchases electricity from the utility, Southern California Edison (SCE). The PPA model provides a 1st year reduction in utility costs of 19% and a 20 year average reduction of 44%. The County financed purchase model provides sufficient utility bill savings compared to projected utility costs to cover debt service, insurance and maintenance costs and provide savings. In both solar models, the electricity generated by the solar installations is fixed for the 20 year term and provides a risk management hedge against rising utility rates.

This report analyzes the BAU model against the relative merits of the Solar PPA and County financed solar models and finds that the County receives the most benefits from the PPA model.

Summary Analysis

The table below summarizes the benefits and drawbacks of the two solar models.

Model	Benefits	Drawbacks

Solar Power Purchase Agreement	• No capital costs
	• Operating budget directly leveraged to increase value of existing expenditures
	• Reduced project, performance & maintenance risks
	• No use of County borrowing capacity
	• No competition for scarce M+O resources
	• County still able to pledge its facilities where solar is installed
		• Parking lots must remain for 20 years
		• Site closure/relocation workarounds
		  ○ Assignment
		  ○ Buyout
		  ○ Relocation
		  ○ Off-site energy credits
		• Sites must accommodate a site easement for access

Solar County financed purchase	• Slightly more operational flexibility to close or relocate facilities or infrastructure • Low interest rate	• County responsible for theft, vandalism, damage and system performance • Use of County borrowing capacity • Additional time required to comply with law to issue debt • New agreements with Depts. to repay bonds from utility budgets • Forfeit 30% tax credit • Additional M+O and insurance costs

Please see Attachment 1 for more detailed analysis of the solar models.

CONCLUSION

ISD's analysis supports that either solar model provides both qualitative and quantitative benefits to the County. However, we believe that the PPA model provides the most benefits with fewer risks.

The current solar market conditions are shaped by several advantageous tax and electric rate provisions that will expire at or near the end of 2016. The expiration of these provisions are expected to temporarily increase the cost of solar installations making solar less competitive with current utility rates. These specific market conditions make expedient implementation an important criteria in evaluating solar models and potential installations at County facilities.

DC:JLG:HC
Attachment

c: ISD Board Deputies
Executive Office, Board of Supervisor
Chief Executive Officer
County Counsel

Attachment 1 – Detailed Analysis

Identification of Viable Sites

Eleven (11) sites were selected by ISD for their potential as sites for larger (>200KW) solar installations. These sites were reviewed with CEO prior to publishing the solicitation. The installation types are primarily parking lot canopies and the proposed solar installations will offset between 15% and 80% of the site's current annual electrical requirements with the balance of the electrical requirements to be purchased from the local utility. The local utility would continue to provide power to these facilities, particularly at times when the solar installations are not generating electricity such as at night or on cloudy days.

Site >200KW	Address	Install type	Energy Offset
Century Regional Detention Facility	11705 S. Alameda St., Lynwood, CA 90262	Canopy	15%
ISD-C/D Building Automotive Services	1104 N. Eastern Ave., LA, CA 90063	Roof	20%
Ferguson Admin. Services Center	5555 Ferguson Dr., Commerce, CA 90022	Canopy	25%
Whittier Narrows Park	750 S. Santa Anita Ave., S. El Monte, CA 91733	Canopy	79%
Parks-Santa Fe Dam Parking Lot 4	15501 E. Arrow Hwy., Irwindale, CA 91706	Canopy	80%
Norwalk Library	12350 Imperial Hwy., Norwalk, CA 90650	Roof	70%
ISD Parking Lot Headquarters	1100-1104 N. Eastern Ave., LA, CA 90063	Canopy	31%
Palmdale Sheriff Station	750 E. Avenue Q, Palmdale, CA 93550	Canopy	80%
South Los Angeles Sheriff Station	1310 W. Imperial Hwy., Los Angeles, CA 90044	Canopy	80%
Walnut Sheriff	21695 E. Valley Road, Walnut, CA 91789	Canopy	80%
Lost Hills Sheriff Station	27050 W. Agoura Rd., Agoura Hills, CA 91301	Canopy	79%

Additionally, the end of term provisions of both solar models have similar benefits to the County. The PPA provides a procedure to determine the Fair Market Value and if the Fair Market Value is less than the cost to restore the site to its original condition, the PPA provider may elect to surrender the equipment and deliver clean title to the County for no consideration. Otherwise, the PPA provider shall restore the site to its original condition. Due to the age of the system and the costs to restore the site, we anticipate that the PPA would be likely to provide

title to the installation to the County, and that the County would be able to continue to operate the system and benefit from its remaining useful life of approximately 5 years. Similarly, in the County financed model, after the debt is retired the County would benefit from the electricity generated from the systems to offset costs of purchasing power from SCE.

Both solar models provide the County all of the renewable energy credits and environmental attributes crediting the County with reducing air and carbon pollution in the region.

The two solar business models were compared with the County's current BAU model which would continue the County's current practice of not installing on-site solar and purchasing all of the required electricity from the local utility company. See Attachment 2

Qualitative Analysis

BAU Model

If the County does not take action to install solar it would forgo the clean energy and environmental benefits of the proposed on-site solar and sites emissions from electricity would track the local utility's carbon emissions rate.

PPA model

PPAs are an industry standard approach to financing the implementation of solar electric installations using existing utilities budget appropriations to pay for the electric output from these installations, eliminating the need and some of the risks of a capital investment. Under a PPA, the County executes a license agreement for a particular site to a solar provider for 20 years. The provider then constructs, owns, operates and maintains the system; selling the solar electricity to the County at a price lower than it would have paid to the local utility providing utility budget savings and on-site, clean, renewable electricity.

This model is anticipated to be the most expedient and have the lowest schedule, maintenance, insurance and operations risks. The PPA model also keeps the solar pilot projects from competing for scarce resources with core County functions while still providing significant benefits to the County.

County Financed Cash model

This model for installing solar involves the County purchasing the PV system itself and financing the purchase over time by issuing long term (20 year) tax exempt bonds. The electricity generated by the PV system would reduce the amount of electricity required to be purchased from the local utility, resulting in avoided costs which are sufficient to fund the system costs, including debt service, insurance and maintenance. However, if actual energy production was below expectation due to system damage, weather or other reasons the avoided costs may not materialize. The cost of repairs and equipment replacement will be the County's responsibility.

This model introduces new risks to the County such as the use of borrowing capacity, additional accounting complexity between capital and operating budgets, performance and schedule risks. The schedule risks may cause the County to miss the window of opportunity for the current advantageous solar market conditions. This model also requires the forfeiture of any value from the 30% investment tax credit of which only private companies may take advantage.

Quantitative Analysis

BAU Model

The BAU model results in a 20 year average annual utility cost of **$2.36M** across the identified 11 sites for purchasing the quantity of electricity that could be offset by the solar installations. This is the most expensive option in every year of the 20 years analyzed. This model includes a conservative projection of 4% annual utility rate increases based on historical data.

PPA model

The 20 year average cost of solar electricity under a PPA is projected to be **$1.33M**. The average annual savings is **$1.03M** with no upfront costs, low risks and significant economic benefits. This option provides fixed price, renewable power and shaded parking for 44% less than what the County's would otherwise pay buying electricity from the utility. Additionally, the first year annual fiscal benefit from the PPA is estimated to be $250K[1].

County Financed Cash model

The 20 year average annual financial cost (debt service, maintenance and insurance expenditures) of solar electricity under this model is projected to be **$1.28M.** This cost when combined with electric rates results in an annual cost of **$1.58M**. This model is projected to provide **$780K** of 20 year average annual savings when compared to business as usual. This model is less financially attractive than the PPA model even when using low interest rates available under the Qualified Energy Conservation Bond program.

Additional quantitative details on the results of the solicitations and the net benefits to the County are described in the body of this letter and in Attachment 2.

Long-term operational flexibility

The PPA model obligates the County to purchase the solar electric output for up to 20 years. This entails potential risks to the County. However, provisions in the PPAs incorporated into this solicitation are able to mitigate these risks.

The County and your Board reserve the right to make real estate decisions such as the sale of a property or closure and/or relocation of County operations to another site.

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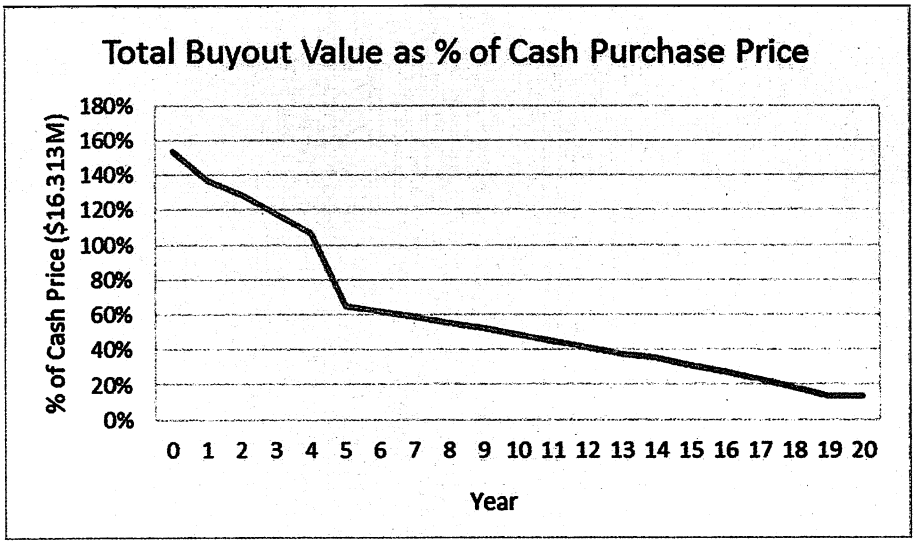
[1] This is the difference between the SCE rate and the PPA rate times the annual electricity production with an adjustment for specific electric rate components.

- In the event that your Board decides to sell a site, the PPA provides for assignment to a new owner and the approval of the assignment cannot be unreasonably withheld by the solar provider.

- In the event, that your Board decides to close or relocate County operations at a particular site, the PPA provides a pre-defined buyout schedule for the County to purchase the equipment. The chart below shows the percent of cash price over the 20 year period. Additionally, in the event of a temporary closure of a facility for renovation an electricity rate option permits the County to temporarily credit another site with the solar generated at reasonably cost effective rates.



- The final option, in the event of a site closure the county has an option to pay to re-locate the solar equipment to a new facility. This option must be weighed against the above provisions and would be unlikely to be cost effective but remains an option to preserve flexibility with real estate decision-making.

Budget impacts

BAU Model

No structural changes would be required to the budget process to continue current practice.

PPA model

The approval of the PPAs will reduce SCE electricity costs for the subject facilities as soon as the solar panels begin generating electricity. These SCE electricity costs savings will be used to pay the PPA provider for the solar electricity generated. The solar PPA costs are fixed for 20 years and are estimated to be 19% less expensive than business as usual in year 1. As the solar projects generate lower cost energy, ISD will reduce the Services & Supplies appropriation in the future fiscal year budget submittals for the Utilities budget based upon actual cost information. There is adequate appropriation in the current and next fiscal year (FY15-16) budgets for the PPA costs.

County Financed Cash model

Unlike the PPA model, the County Financed model would establish a long-term debt service obligation to repay the upfront capital costs as well as annual operating, maintenance and insurance costs which would need to be funded. The cheaper-than-utility solar electricity generated would result in avoided costs which should be sufficient to cover these costs.

The County financed model would require inter-departmental agreements bridging between capital budget expenditures and reductions in Utility budgets to service the debt which would require new processes and procedures and additional agreements between departments and CEO. This has the potential to delay the solar projects and cause the County to miss the window of opportunity with the current solar market conditions.

Environmental

The proposed Project is statutorily and categorically exempt from the provisions of the California Environmental Quality Act (CEQA). Section 21080.35 of the Public Resources Code establishes a statutory exemption from CEQA for solar energy systems installed on an existing rooftop or at an existing parking lot. The Project, which consists of execution of a PPA which will include, among other things, the installation of solar panels on existing buildings and existing parking lots, which is also within certain classes of projects that have been determined not to have a significant effect of on the environment in that it meets criteria set forth in Section 15303 and 15311 of the State CEQA Guidelines and Class 3(b) and Class 11 of the County's Environmental Document Reporting procedures and Guidelines, Appendix G. These classes include construction and location of small new equipment and facilities as well as minor accessory structures. The eleven project sites, identified in Attachment 2 of this memo are not located in sensitive environments and there are no cumulative impacts, unusual circumstances or other limiting factors that would make the exemption inapplicable based on the project records.

Upon your Board's approval of the proposed Project, ISD will file a Notice of Exemption with the County Clerk in accordance with Section 15062 of the State CEQA Guidelines.

Attachment 2 – Quantitative Analysis

					Utility BAU Analysis		Power Purchase Agreement (PPA) Analysis			County Financed Purchase Analysis				
Site	Address	Solar Capacity (DC)	Install type	Solar Production (kWh)	Avg SCE $/kWh	Average Annual Utility expense (20 yrs)	PPA fixed price	Average Annual PPA Expense (20 yrs)	Average PPA Savings per year	Cash price	Annual Debt Service	Annual Maintenance & Insurance Expense	Financed solar costs total	Average Annual Savings (20 year)
Century Regional Detention Facility	11705 S. Alameda St., Lynwood, CA 90262	679	Canopy	969,191	$ 0.1304	$ (195,717)	$ 0.1065	$ (131,365)	**$ 64,352**	$ 1,673,914	$ (103,395)	$ (26,978)	$ (130,373)	**$ 37,199**
ISD-C/D Building Automotive Services	1104 N. Eastern Ave., LA, CA 90063	1,122	Roof	1,676,547	$ 0.1447	$ (375,555)	$ 0.0805	$ (183,650)	**$ 191,905**	$ 1,874,450	$ (115,782)	$ (37,436)	$ (153,217)	**$ 173,650**
Ferguson Admin. Services Center	5555 Ferguson Dr., Commerce, CA 90022	1,120	Canopy	1,651,072	$ 0.1275	$ (326,010)	$ 0.1042	$ (219,990)	**$ 106,020**	$ 2,656,360	$ (164,079)	$ (43,650)	$ (207,729)	**$ 70,333**
Whittier Narrows Park	750 S. Santa Anita Ave., S. El Monte, CA 91733	294	Canopy	425,588	$ 0.3304	$ (217,717)	$ 0.1128	$ (60,366)	**$ 157,351**	$ 799,212	$ (49,366)	$ (12,269)	$ (61,635)	**$ 143,723**
Parks-Santa Fe Dam Parking Lot 4	15501 E. Arrow Hwy., Irwindale, CA 91706	539	Canopy	786,418	$ 0.1726	$ (210,203)	$ 0.1045	$ (105,019)	**$ 105,184**	$ 1,347,921	$ (83,259)	$ (21,555)	$ (104,813)	**$ 82,552**
Norwalk Library	12350 Imperial Hwy., Norwalk, CA 90650	256	Roof	384,281	$ 0.1595	$ (94,903)	$ 0.0863	$ (44,323)	**$ 50,579**	$ 490,962	$ (30,326)	$ (9,052)	$ (39,378)	**$ 44,365**
ISD Parking Lot Headquarters	1100-1104 N. Eastern Ave., LA, CA 90063	1,120	Canopy	1,653,443	$ 0.1447	$ (370,380)	$ 0.1042	$ (220,306)	**$ 150,074**	$ 2,691,561	$ (166,253)	$ (43,932)	$ (210,185)	**$ 112,178**
Palmdale Sheriff Station	750 E. Avenue Q, Palmdale, CA 93550	532	Canopy	759,646	$ 0.1340	$ (157,600)	$ 0.0935	$ (93,088)	**$ 64,512**	$ 1,296,330	$ (80,072)	$ (21,019)	$ (101,092)	**$ 34,447**
South Los Angeles Sheriff Station	1310 W. Imperial Hwy., Los Angeles, CA 90044	630	Canopy	899,351	$ 0.1299	$ (180,966)	$ 0.1065	$ (121,899)	**$ 59,067**	$ 1,548,836	$ (95,669)	$ (24,998)	$ (120,667)	**$ 34,181**
Walnut Sheriff	21695 E. Valley Road, Walnut, CA 91789	404	Canopy	588,368	$ 0.1436	$ (130,866)	$ 0.1065	$ (79,748)	**$ 51,118**	$ 1,033,745	$ (63,853)	$ (16,348)	$ (80,201)	**$ 33,578**
Lost Hills Sheriff Station	27050 W. Agoura Rd., Agoura Hills, CA 91301	346	Canopy	516,479	$ 0.1307	$ (104,522)	$ 0.1036	$ (68,506)	**$ 36,016**	$ 899,604	$ (55,567)	$ (14,116)	$ (69,683)	**$ 19,840**
Totals		**7,042**		**10,310,384**	**$ 0.1589**	**$ (2,364,438)**	**$ 0.1008**	**$ (1,328,259)**	**$ 1,036,179**	**$ 16,312,895**	**$ (1,007,620)**	**$ (271,352)**	**$ (1,278,972)**	**$ 786,046**
													total w/ Demand charges	
													$ (1,578,392)	

The parameters used to calculate NPV of the business models are provided below:

1. SCE's rates are conservatively projected to escalate at 4% annually
2. The PPA rate is fixed (*i.e* ., not escalated) over the 20 year life of the PPA
3. The amount of electricity produced annually by the solar installations was calculated using National Renewable Energy Lab's (NREL) solar modeling tools that project solar performance, orientation of the panels, system design and geographic location.
4. County secured financing assumed 2% interest rate for a term of 20 years with a 1% origination fee.
5. The level cost per energy unit or kilo-Watt hours (kWh) for the cash purchase models used NREL's level cost calculator.

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County of Los Angeles
INTERNAL SERVICES DEPARTMENT
1100 North Eastern Avenue
Los Angeles, California 90063

DAVE CHITTENDEN
Chief Deputy Director

Telephone: (323) 267-2103
FAX: (323) 264-7135

"To enrich lives through effective and caring service"

August 4, 2016

TO: Supervisor Hilda L. Solis, Chair
Supervisor Mark Ridley-Thomas
Supervisor Sheila Kuehl
Supervisor Don Knabe
Supervisor Michael D. Antonovich

FROM: Dave Chittenden
Chief Deputy Director

BOARD MOTION OF JUNE 28, 2016, ITEM R-2 - FOLLOW-UP REGARDING STATUS OF SOLAR DEPLOYMENTS

At your Board meeting on June 28, 2016, during discussion of the possibility of power outages caused by depleted natural gas supplies (item R-2), Supervisor Solis requested an update on solar energy projects for Los Angeles County businesses and households.

Solar Strategy for County Buildings

Background

On November 25, 2014, your Board instructed ISD to initiate a program exploring how solar installations could be implemented at County facilities under available market financing models or using upfront capital provided by the County.

On May 26, 2015, ISD reported back on the results of an initial solicitation seeking pricing for solar installations using its Energy Efficiency Projects Master Agreement (EEPMA) to establish a Power Purchasing Agreement (PPA). PPAs provide for solar installations under long-term financing arrangements. ISD compared the PPA price proposals against an upfront capital option, and recommended using PPAs to install solar equipment at County sites.

On July 21, 2015, your Board instructed ISD to proceed with an award of contract, as described in the May 26, 2015 Board report (Phase One), and to proceed with additional solicitations for solar installations at County sites under the PPA model.

On January 5, 2016, ISD reported back on the (1) status of the Phase One, (2) plans for Phase Two, and (3) future PPA solicitations for installing solar at County sites.

Phase One Status

In its January 5, 2016 status report to your Board regarding the Phase One pilot project, ISD noted the completion of a competitive solicitation for solar installations at nine County sites. In addition, ISD reported the launch of the Phase Two solicitation for twenty-one additional sites.

Phase One solar projects were awarded to SunEdison. After execution of the EEPMA Work Order and PPAs for each site, SunEdison conducted its contractually-allowed due diligence and determined that the projects required additional work, which would substantially increase project costs at all sites. ISD negotiated with SunEdison, but ultimately denied most of the proposed cost increases. Both parties agreed to mutually terminate the PPAs for all sites. On May 17, 2016, your Board approved the mutual termination of Phase One's nine solar PPAs with SunEdison.

Because the Phase One proposals were received more than a year earlier, in late March 2015, and the firm-offer period for that solicitation expired in September 2015 and the proposals had then lapsed, ISD decided not to move forward with any other bidder for Phase One, with the intent of re-soliciting for those Phase One locations in a future phase.

Phase Two Status

On January 19, 2016, ISD received three proposals for the solar carport installations at twenty-one sites in response to the Phase Two EEPMA solicitation. The highest ranked proposer was asked to provide further information to clarify system design and capacity, as well as financing documentation and Special Purpose Entities (SPE) clarification prior to negotiations.

Submittal of financial reports is considered critical in determining the financial viability of the contractor, and the SPE designated by the contractor, to ensure completion of the project, adequate insurance and continuous maintenance and operation of the solar system at each of the County sites for the life of the 20-year PPA contract.

ISD has been in prolonged negotiations with the highest-ranked proposer since April 2016, but they have not yet provided the required financial reports for their SPE in compliance with Board policy. On July 28, 2016, that proposer was given a 30-day period to provide the required reports. Failure to do so will result in cancellation of this

solicitation, as the second and third placed vendors' costs have been determined to be higher than the incumbent utility's.

County Solar Strategy Update

Based on the above-mentioned difficulties encountered in both phases of the PPA program, ISD has amended the processes under EEPMA for soliciting PPAs and has re-evaluated its strategies and options for implementing solar at County locations. These processes and approaches are discussed below.

EEPMA PPA Process and Site Prioritization

ISD adjusted and expanded pre-bid processes to clarify its bid requirements to potential EEPMA PPA proposers. ISD is currently re-examining its selection of potential sites to ensure proposers prioritize electric rate structures and electrical equipment configurations that provide the greatest, potential cost savings by installing solar.

ISD has already eliminated most rooftop locations for potential solar installation, unless a roof has been recently replaced and meets structural requirements.

This may mean future EEPMA PPA solicitations will be limited to larger carport locations only or expanded to ground-mounted locations. Ground-mounted solar is neither rooftop nor carport canopy located, instead, the solar panels are installed on open space lots.

The County's Solar Map has been updated to identify solar potential on parking lot areas and should be publicly available in September of 2016. The Solar Map is also being updated to include solar potential on open spaces/vacant lots to include other filtering criteria to streamline permitting and construction of solar sites on open spaces/vacant lots. ISD is working with the Department of Public Works (DPW) and the Department of Regional Planning on this effort under the Solar Energy Action Committee (SEAC) chaired by DPW.

ISD will continue to investigate solar installations under a PPA model, given these experiences and the fact that the Federal government has extended the solar tax credits for solar project owners through 2020. A Phase Three PPA solicitation is expected to be available for bidders in January of 2017.

Solar Installations Using Capital

ISD has been installing energy efficiency projects throughout County facilities since the mid-1990's using a variety of funding sources including: third-party lease financing, California Public Utilities Commission (CPUC) funding, American Recovery and Reinvestment Act funding, litigation-related settlement funds from the Los Angeles Department of Water & Power, and funding from the Chief Executive Office (CEO).

As part of ISD's FY 2015/2016 Utilities Budget, the CEO authorized ISD to utilize up to $3.0 million in Extraordinary Maintenance funding to augment the funding described above for energy efficiency projects on an annual basis. Recently, ISD has received approval from the CEO to use a portion of these funds for solar projects at County facilities.

ISD has released an EEPMA solicitation for energy efficiency, solar canopy and ground-mount solar installations at seven County locations, and should receive responses to this solicitation by September 15, 2016. ISD will increase its outreach to these funding sources to assure their use in augmenting CEO funds for solar installations.

Lease Financing

Solar installations on County facilities may also be financed using traditional, market-based lease financing. Similar to PPAs, the solar provider or another third party would own the installations until they are paid off. The tax benefits accrue to the provider or third party. The County would finance the cost of installations over a negotiated term and interest rate.

Community Choice Aggregation

ISD is leading the efforts to develop a Community Choice Aggregation (CCA) program for the County. Under CCA, the County would procure wholesale power for Southern California Edison (SCE) customers in County unincorporated areas and potentially in CCA-eligible cities within the County. The County CCA preliminary studies indicate that greater levels of renewable power may be procured by the County and delivered to customers at retail rates at least 4% lower than SCE's rates. In addition, the County CCA could deliver wholesale power at 100% renewable levels at 10% lower than SCE's equivalent 100% renewable rates.

To the extent that solar at County facilities has multiple benefits such as: (1) increasing the amount of renewable energy used for electric supply throughout the region; (2) reducing the County's greenhouse gas responsibility due to electricity usage; and (3)

reducing the County's electricity bills thru use of renewable power; then County facilities utilizing County CCA-procured power at greater levels of renewables can accomplish all three of these as an alternative to physical, renewable energy installations.

The Final Report Back on the Preliminary Technical Analysis on the Feasibility of a Countywide CCA was completed and submitted to your Board on July 28, 2016.

Renewable Energy Strategy Summary

Each opportunity described above for increasing the installation and/or utilization of renewable resources in County facilities has plusses and minuses regarding achieving the benefits of renewable energy generation.

Using the Phase Two projects offered under the recent EEPMA PPA solicitation, ISD has re-examined the financial analysis under a PPA, lease financing, under capital investment and under a County CCA. Also, ISD has included in this analysis a summary of the environmental and other benefits. This analysis is included in this memorandum as Attachment 1 and is summarized in the table below.

Estimates for Solar Carports	**PPA**	**Lease Financing**	**Cash**	**CCA (50% renewables)**
Total kWh under Phase Two*	27, 890,000	27, 890,000	27,890,000	27,890,000
Total kWh converted to renewables**	11,045,000	11,045,000	11,045,000	13,950,000
Upfront Capital Required	$0	$0	$22,200,000	$0
Annual Energy $$ Savings	$104,000	$64,924	$850,000	$180,000
Present Value (20 years)	$1,700,000	$355,000	$7,000,000	$2,700,000
Annual GHG Reductions (Mtons CO2)***	7,800	7,800	7,800	9,800

* total energy consumed by Phase Two buildings annually
**total estimated energy replaced by renewable power installation
***total annual GHG reductions attributed to the replacement of SCE power with renewables

Solar installations at County locations still provide the qualitative benefits of carport shading which are not assessed in the analysis above. The cash option is less attractive if the value of the cash placed in other investments is netted from the analysis. The physical solar installations only convert a portion of the actual energy consumed by the buildings. CCA, through power procurement accounting, can provide 50% (or more) conversion since the renewable power provided to locations is based on the CCA's

entire power portfolio. The significant, recent, information is that the proposed CCA rate provides greater rate savings than the Phase Two PPA. The lease financing option assumed 5.5% interest rate over twenty years.

Solar Strategy for Private Buildings

The County is positively impacting the rate of solar installations on households through its residential Property Assessed Clean Energy (PACE) financing program. Since July of 2015, the County's PACE program has financed over 3,500 residential projects that included solar installations.

The County's commercial PACE program may also impact the rate of solar installations on non-residential buildings. To date the County and other commercial PACE programs (all of which receive technical support from the Southern California Regional Energy Network (SoCalREN)) has financed $4 million in commercial PACE projects which have included solar. Commercial PACE has a more rigorous approval process and the County, through the SoCalREN, is working to help transform this market.

A County Community Choice Aggregation (CCA) program may also increase the rate of residential and non-residential solar through design of retail electricity rates that encourage solar deployment.

CONCLUSION

ISD recommends that the utilization of PPAs, cash-as-augmentation to other funding, and CCA implementation, all taken together as part of an energy efficiency portfolio, will help the County achieve its clean energy economic and environmental goals. ISD will continue to pursue all of these options for County facilities.

In particular, ISD will continue to examine and implement solar or renewable power use under all options discussed in this report. Existing, limited funding will be used to implement solar, along with energy efficiency, at certain County locations. ISD will plan on a Phase Three PPA under its modified solicitation processes but only for those sites that are more confidently predicted to have the highest financial benefits and where quantitative benefits such as car shading will be a factor. And where physical installations are not deemed viable at County locations, those sites will be candidates for procuring higher levels of renewable power under a potential County CCA.

The utilization of solar energy production, whether onsite or procured remotely, will make a significant impact in reducing greenhouse gas production and achieving economic benefits in County operations.

ISD will continue to report annually to your Board on the progress on solar deployment under this revised strategy.

If you have any questions, please contact me at (323) 267-2103, via email dchittenden@isd.lacounty.gov, or your staff may contact Howard Choy at (323) 267-2160, via email hchoy@isd.lacounty.gov.

DC:HC:br

Attachment

c: ISD Board Deputies
Chief Executive Officer
Chief Operating Officer
Executive Officer, Board of Supervisors
Chief Executive Office – Asset Management Branch

ATTACHMENT 1

Solar Financial Analysis Summary

	Location	Proposed Estimated	Business As Usual1 Generation and Delivery	Power Purchase Agreement Savings	Power Purchase Agreement NPV	Cash Purchase3 Savings	Cash Purchase3 NPV	LA Community Choice Energy (50% Green)4 Savings5	LA Community Choice Energy (50% Green)4 NPV	Municipal Lease Savings	Municipal Lease NPV
1	PH-ENVIRONMENTAL HEALTH	935,524.00	$4,087,895.88	$406,291.33	$64,845.32	$1,910,805.61	$951,764.26	$225,898.61	$170,317.39	$157,990.83	$67,787.10
2	ANTELOPE VALLEY SERVICE CENTER-	675,445.00	$2,832,683.75	$232,537.12	$226,423.68	$1,163,803.14	$509,354.10	$122,350.97	$92,286.04	($39,290.38)	($68,083.53)
3	ANTELOPE VALLEY SERVICE CENTER-	775,176.00	$3,084,198.93	$181,506.08	$176,734.26	$1,326,736.22	$610,378.14	$147,220.67	$111,044.58	$204,259.90	$112,136.03
4	PUBLIC LIBRARY-HEADQUARTERS	687,861.00	$3,002,344.27	$297,015.20	$289,206.62	$1,444,426.46	$737,471.56	$190,414.73	$143,624.70	$183,856.23	$101,495.15
5	SHERIFF-CARSON STATION	719,949.00	$2,473,289.91	($31,699.12)	($30,865.74)	$735,612.35	$181,896.78	$117,049.44	$88,287.24	$23,180.83	($22,923.36)
6	PUBLIC LIBRARY-LANCASTER LIBRARY	649,680.00	$2,847,577.77	$286,613.26	$279,078.15	$1,369,553.19	$699,066.98	$127,252.30	$95,982.98	$163,247.96	$87,923.14
7	SHERIFF-NORWALK STATION	388,936.00	$1,395,896.39	$13,470.05	$13,115.92	$457,151.05	$141,991.53	$124,446.21	$93,866.42	$12,515.42	($12,389.54)
8	DPSS-POMONA WS DISTRICT OFFICE	637,196.00	$2,583,747.11	$174,044.75	$169,469.08	$1,045,802.60	$449,858.87	$145,783.17	$109,960.31	$20,515.44	($20,289.19)
9	DPSS-CUDAHY A/P DISTRICT OFFICE	679,043.00	$2,660,397.52	$137,843.69	$134,219.76	$1,122,453.02	$505,950.97	$136,390.60	$102,875.75	$181,501.91	$100,196.04
10	PUBLIC LIBRARY-ROSEMEAD LIBRARY	251,765.00	$1,224,656.37	$173,099.34	$168,548.53	$625,457.21	$334,801.39	$54,154.72	$40,847.44	$21,483.85	$2,191.90
11	MACLAREN CHILDREN'S CENTER	550,624.00	$2,297,612.25	$183,627.42	$178,799.82	$979,374.11	$446,311.41	$231,470.58	$174,592.02	$34,727.01	($4,561.09)
12	AG COMM/WTS & MEAS HQ/	286,538.00	$1,224,344.46	$110,248.73	$107,350.27	$525,278.78	$241,007.90	$102,758.52	$77,507.98	($2,587.29)	($18,137.88)
13	DF KIRBY CENTER-ADMINISTRATION	388,938.00	$1,376,420.13	$3,495.04	$3,403.15	$437,674.79	$127,738.97	$193,751.03	$146,141.18	$12,523.11	($12,383.79)
14	PH-WHITTIER PUBLIC HEALTH CENTER	296,765.00	$1,186,905.94	$72,643.17	$70,733.37	$467,866.95	$194,897.67	$86,101.05	$64,943.70	$5,187.49	($12,782.00)
15	SHERIFF-WEST HOLLYWOOD STATION	264,264.00	$895,943.41	($17,728.37)	($17,262.29)	$296,744.26	$94,252.12	$93,755.75	$70,717.43	$69,567.82	$38,178.82
16	DHS-LONG BEACH COMPREHENSIVE	278,377.00	$999,441.99	$33,733.65	$32,846.78	$360,296.22	$132,565.38	$141,520.90	$106,745.40	$60,723.39	$30,633.69
17	PROBATION-RIO HONDO AREA OFFICE	340,090.00	$1,400,456.57	$103,867.36	$101,136.67	$621,497.67	$295,033.01	$61,068.04	$46,061.98	$77,153.61	$39,690.07
18	DCSS-EAST LOS ANGELES SERVICE	222,573.00	$896,913.11	$57,931.21	$56,408.19	$357,633.87	$151,100.88	$80,025.45	$60,361.04	$3,887.73	($9,588.66)
19	SHERMAN BLOCK SHERIFF'S	428,660.00	$1,440,980.45	($35,064.80)	($34,142.94)	$402,368.58	$81,418.41	$542,961.29	$409,541.07	$7,490.90	($18,464.48)
20	CAPANELLA PARK	74,191.00	$326,411.27	($11,226.18)	($10,931.04)	$136,445.52	$60,509.80	$14,070.41	$10,612.93	($15,867.36)	($16,324.96)
21	HARRY HUFFORD REGISTRAR RECORDER	1,520,721.00	$4,778,637.13	($295,093.87)	($287,335.81)	$1,139,057.07	$87,031.73	$618,637.32	$466,621.46	$97,724.52	($11,211.89)
		11,052,316.00	**$43,016,754.61**	**$2,077,155.06**	**$1,691,781.75**	**$16,926,038.67**	**$7,034,401.86**	**$3,557,081.76**	**$2,682,939.04**	**$1,279,792.91**	**$353,091.57**

NOTES:

1 SoCal Edison 2014 Blended Utility Rate - adjusted with EES Forecasted Rates emailed 5/31/16 for Delivery increase at 2%. 2 PPA $/kWh with $10% demand reduction.

3 Estimated purchase price of system at $22.2M.

4 CCA rates based on EES LACCE's 50% renewables rates estimates on 5/12/16 Presentation. 5 Based on total consumption of all sites (27.89 GWh)

* Net present value (NPV) Discount Rate used for calculations: *2.70%*